The Self-Rating Score (SRS) *Versus* the Examiner Rating Score (ERS) in Measuring Helplessness in Healthy Individuals and in Patients with Benign Breast Disease and Breast Cancer: A Prospective Case–Control Study in Finland

MATTI ESKELINEN[1,2], RIIKA KORHONEN[1,2], TUOMAS SELANDER[3] and PAULA OLLONEN[4]

[1]Surgery and [4]Psychiatry, School of Medicine, University of Eastern Finland, Kuopio, Finland; [2]Department of Surgery and [3]Science Service Center, Kuopio University Hospital, Kuopio, Finland

Abstract. *Background: The self-rating score (SRS) versus examiner rating score (ERS) in measuring helplessness in healthy study subjects (HSS) and in patients with benign breast disease (BBD) and breast cancer (BC) has not been yet compared in a prospective study. We, therefore, investigated SRS versus ERS in 115 patients. Patients and Methods: In an extension of the Kuopio Breast Cancer Study 115 women with breast symptoms were evaluated for hopelessness versus helplessness before any diagnostic procedures were carried-out. Results: The SRS and the ERS for hopelessness were highly significantly positively correlated in the HSS, BBD and BC groups. The weighted kappa values for hopelessness between the SRS and the ERS in the HSS, BBD and BC groups were also statistically significant. There was also a significant positive correlation between the SRS and the ERS for helplessness in the HSS, BBD and BC groups. The weighted and unweighted kappa-values for hopelessness versus helplessness for the SRS in the HSS, BBD and BC groups were statistically significant. The Spearman correlation coefficients and both weighted and unweighted kappa values for hopelessness versus helplessness in the ERS in the HSS, BBD and BC groups were statistically significant. Conclusion: The results of this study support a specific link between hopelessness and helplessness attitude characteristics by SRS and ERS. This finding is of clinical importance, since in the BC and BBD groups, hopelessness/helplessness might be associated with a delay in BC diagnosis and have a negative impact on the adjustment and well-being of patients.*

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Correspondence to: Matti Eskelinen, MD, Ph.D., School of Medicine, University of Eastern Finland, P.O. Box 100, FI-70029 KYS, Finland. Tel: +358 17173311, Fax: +358 17172611, GSM: +358 400969444, e-mail: matti.eskelinen@kuh.fi

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A two-year follow-up study of Haatainen *et al*. (1) in Finland showed 11.4% prevalence of hopelessness and, after excluding self-reported mental disorders, the prevalence of hopelessness was still 7.8% in the general population (1). We assessed hopelessness in patients with breast cancer (BC) and benign breast disease (BBD), and in healthy study subjects (HSS) (2). Our results suggested that patients with BC and BBD tended to be at risk for hopelessness. However, the results of our study did not support a specific link between hopeless attitude characteristics and BC risk (2). The helplessness concept has been studied in some research settings and was found to have a negative impact on the adjustment and subjective well-being in patients with BC (3, 4). Recently, Stern *et al*. reported a significant relationship between helplessness and the development of hypertension in older Mexican and European Americans (5). Because BC is a hormonally responsive neoplasm with great psychological impact, it is the tumor type most extensively investigated for possible psychological variables associated with risk and survival (6). Hormonal factors, such as early age at menarche, later age at menopause, later age at first full-term pregnancy and hormone replacement therapy, are known to be the main risk factors for sporadic BC (7, 8). In addition, life-style factors, such as obesity, smoking, alcohol consumption and lack of physical activity, appear to contribute to an increased risk for this malignancy, although the results concerning such factors are inconsistent (9-13).

Psychological factors, such as stressful and adverse life events, are widely thought to play a role in the aetiology of BC (14-35). To our knowledge, the associations between hopelessness *versus* helplessness and the risk of BC are rarely considered together. Therefore, we carried-out this prospective study to examine the role of hopelessness *versus* helplessness

Table I. *Characteristics of the study participants. Results are shown for the patients with breast cancer (BC), for those with benign breast disease (BBD) and for the healthy study participants (HSS).*

Variable	HSS (n=28)	BBD (n=53)	BC (n=34)	*p*-Value
Age (mean, years)	45.7	47.6	51.6	0.12
Height (mean, cm)	160.8	162.3	164.4	0.75
Body weight (mean, kg)	68.3	67.8	72.5	0.25
Age at menarche (mean, years)	13.4	13.4	13.4	0.99
Age at birth of first child (mean, years)	25.0	25.0	25.2	0.92
Age at menopause (mean, years)	50.0	48.9	47.9	0.53
No. of children (mean)	2.5	2.4	2.6	0.27
Parous	23 (82%)	44 (83%)	31 (91%)	0.50
Breast feeding (mean, months)	3.9	3.4	3.6	0.77
Use of oral contraceptives	18 (64%)	25 (47%)	13 (38%)	0.12
HRT	14 (50%)	36 (68%)	27 (79%)	0.44
Pre-menopausal	18 (64%)	28 (53%)	13 (38%)	0.10
Post-menopausal	10 (36%)	25 (47%)	21 (62%)	0.12
History of previous BBD	10 (36%)	22 (42%)	18 (53%)	0.37
Family history of BC	5 (18%)	5 (9%)	1 (3%)	0.21
Use of alcohol	13 (46%)	31 (58%)	21 (62%)	0.44
Smoking	10 (36%)	21 (40%)	15 (44%)	0.80

HRT, Use of hormonal replacement therapy.

in women with breast symptoms referred by physicians to the Kuopio University Hospital.

Patients and Methods

The Kuopio BC Study was a multi-disciplinary cooperative project conducted by different departments of the University of Kuopio and Kuopio University Hospital, and included all women who were referred to the hospital for breast examination between April 1990 and December 1995. The Kuopio BC Study followed the protocol of the International Collaborative Study of Breast and Colorectal Cancer coordinated by the European Institute of Oncology in Milan, and was initiated as a SEARCH program of the International Agency for Research on Cancer. The collaborative study is based on the assumption that BC and colorectal cancer may have common risk factors. Study centres for the BC study are situated in Canada, Finland, Greece, Ireland, Italy, Russia, Slovakia, Spain and Switzerland (36). The study participants showed BC symptoms (a lump in the breast or in the axilla, pain in the breast, bleeding from the nipple, nipple discharge or skin dimpling), or an abnormality of the breast and the indications for referral in this study were in line with our previous investigations in a BC Diagnostic Unit in Finland (37).

This case–control study was an extension of the Kuopio BC Study (38, 39) and was approved by the Joint Committee of the University of Kuopio and the Kuopio University Hospital (approval number 14/12/1989). Women referred from January 1991 to June 1992 were included. Participation was based on written consent. One hundred and fifteen women participated and were interviewed (to determine the level of emotional depression) by a psychiatrist (P.O.) before any diagnostic procedures, so neither the interviewer nor the patient knew the diagnosis at the time of the interview. The interviews were recorded and the ratings were completed before the final diagnosis. The clinical examination, mammography and biopsy showed BC in 34 (29.6%) patients, BBD in 53 (46.1%) patients and 28 (23.4%) HSS (Table I).

Scoring of hopelessness. The questionnaire items measuring hopelessness in the self-rating score (Hopelessness SRS) and in the examiners-rating score (Hopelessness ERS) were assessed before any diagnostic procedures for the HSS, BBD and BC groups and are shown in our earlier report of hopelessness (2). The mean duration (SD) of the interview for the patients with BC was 126.5 (21.6) minutes, for the patients with BBD was 127.3 (23.3) minutes, and for the HSS group 123.0 (23.3) minutes (p=0.72).

Scoring of helplessness. The questionnaire items measuring helplessness in the self-rating score (SRS) were: grade I, 'I feel self-supporting and have no helplessness' (true or false); grade II, 'I feel independent, but have a little helplessness' (true or false); grade III, 'I feel balanced, but have some helplessness' (true or false), grade IV, 'I feel dependent and have clear helplessness' (true or false) and grade V, 'I have strong helplessness' (true or false). The helplessness characteristics in the examiner rating score (ERS) for the HSS, BBD and BC groups were on a 5-point Likert-scale: grade I, no helplessness, self-supporting; grade II, little helplessness, independent; grade III, some helplessness, balanced; grade IV, clear helplessness, dependent and grade V, strong helplessness.

Statistical analysis. Significance of the results was calculated with the SPSS/PC statistical package (SPSS Inc., Chicago, IL, USA). Correlations and differences between the study groups (BC, BBD and HSS groups) were measured with the two-sided chi-square test and non-parametric Kruskal–Wallis variance analyses. Results were considered statistically significant at a p-value <0.05. The agreement between ERS and SRS was assessed using unweighted kappa statistic (Cohens's kappa), where all disagreements were arbitrarily regarded as having equal importance (40, 41), and the

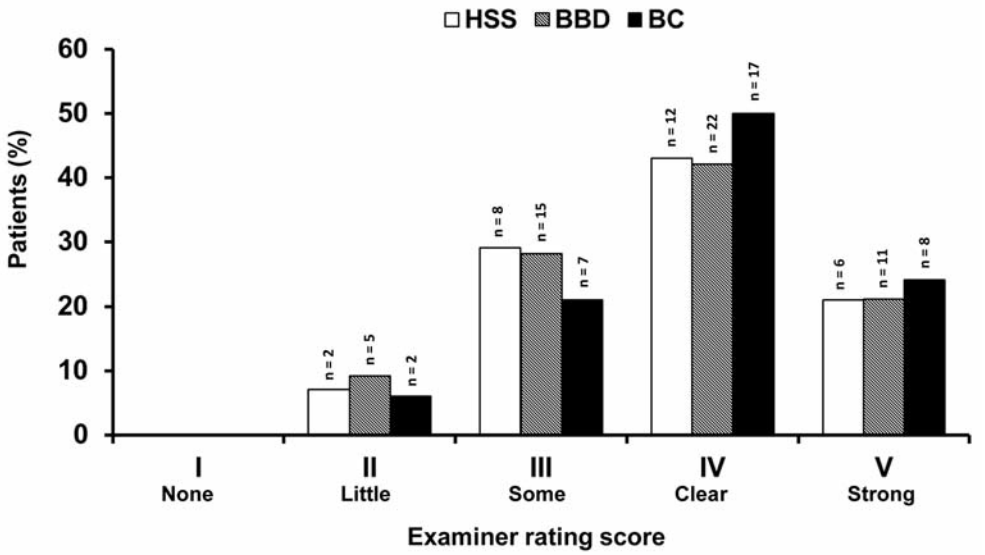

Figure 1. *Effect of BCAA supplementation on the expression of autophagic indicators. (A) qRT-PCR analysis of mRNA expression of LC-3; (B), western blot analysis of protein expression of LC-3; (C), qRT-PCR analysis of mRNA expression BECN1; (D), western blot analysis of protein expression of Beclin-1 (insulin or BCAA-alone vs. insulin + BCAA).*

weighted kappa statistic, where weight matrix cells located on the diagonal (upper-left to bottom-right) represent agreement and thus contain zero (42). The kappa statistic provides a measure of agreement after exclusion of the proportion of agreement expected by chance, and can vary from +1, indicating perfect agreement, indicating agreement no greater than expected by chance, and can assume negative values up to −1 when agreement is less than expected by chance.

Results

Although the patients in the BC group were older than those in the BBD and HSS groups (51.5 *versus* 47.5 and 45.7 years, respectively), the age difference was not statistically significant (p=0.12). The majority of patients (85/115, 74%) were married or living in a steady relationship. The groups differed only slightly from each other as to the factors of the reproductive life of the women (Table I).

The distribution of the ERS and SRS in five separate categories are shown in Figures 1 and 2. The Spearman correlation coefficients and kappa-values for hopelessnesshelplessness by the SRS *versus* the ERS in the HSS, BBD and BC groups are shown in Table II. The SRS and the ERS for hopelessness were significantly positively correlated in the HSS , BBD and BC groups (p<0.001). The weighted kappa-values for hopelessness between the SRS and the ERS in the HSS, BBD and BC groups were statistically significant (Table II). There was also a highly significant positive correlation between the SRS and the ERS for helplessness in the HSS, BBD and BC group. In addition, the weighted kappa-values for helplessness by the SRS and the ERS in the HSS, BBD and BC groups were statistically significant.

The Spearman correlation coefficients and kappa values between hopelessness and helplessness by the SRS in the HSS, BBD and BC groups are also shown in Table II. The hopelessness and helplessness were significantly positively correlated by the SRS in the HSS, and BBD groups (p<0.001). In addition, the weighted and unweighted kappa-values for hopelessness *versus* helplessness by the SRS in the HSS, BBD and BC groups were statistically highly significant.

The Spearman correlation coefficients and kappa values between hopelessness and helplessness by the ERS in the HSS, BBD and BC groups are shown in Table II. The hopelessness and the helplessness were highly significantly positively correlated by the ERS in the HSS, BBD and BC groups (p<0.001). The weighted and unweighted kappa-values for hopelessness *versus* helplessness by the ERS were statistically highly significant.

Discussion

Although there are no previous reports with this study design available for sufficient comparison, some reports of helplessness are available. In 2009, Stern *et al*. reported a significant relationship between helplessness and the development of incident hypertension (5). The findings are consistent with the reports of Engel (43) and Seligman (44) about the role of helplessness in the 'given up-giving-up' complex, which the authors proposed was highly conducive to the development of

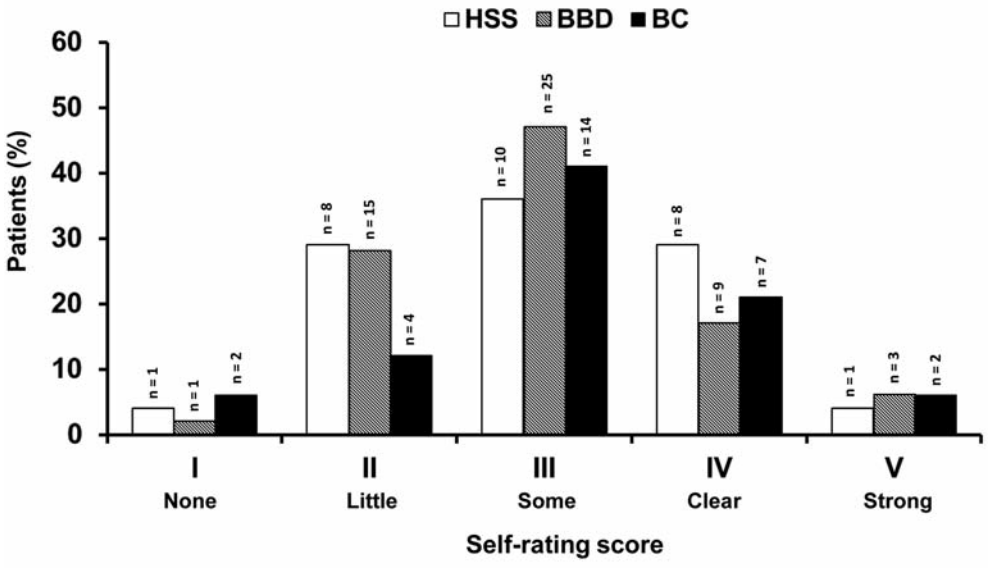

Figure 2. *The distribution of the mean of the self-rating scores measuring helplessness (SRS) in five separate categories, for the healthy study participants (HSS), for those with benign breast disease (BBD) and for patients with breast cancer (BC).*

Table II. *The Spearman correlation coefficients and kappa values between the self-rating score (SRS) and the examiner rating score (ERS) for hopelessness and helplessness in the HSS, BBD and BC groups.*

Group	Spearman (*p*-value)	Kappa (*p*-value)	Weighted kappa (*p*-value)
Rating of hopelessness (SRS *vs*. ERS)			
HSS	0.635 (<0.001)	0.005 (0.96)	0.321 (0.002)
BBD	0.735 (<0.001)	0.129 (0.103)	0.389 (<0.001)
BC	0.658 (<0.001)	0.063 (0.427)	0.318 (<0.001)
Rating of helplessness (SRS *vs*. ERS)			
HSS	0.745 (<0.001)	0.092 (0.353)	0.328 (<0.001)
BBD	0.766 (<0.001)	0.054 (0.439)	0.304 (<0.001)
BC	0.561 (0.01)	0.023 (0.769)	0.196 (0.007
Rating of hopelessness *vs*. helplessness (SRS *vs*. SRS)			
HSS	0.680 (<0.001)	0.332 (<0.001)	0.485 (<0.001)
BBD	0.622 (<0.001)	0.284 (<0.001)	0.417 (<0.001)
BC	0.280 (0.11)	0.328 (<0.001)	0.236 (0.007)
Rating of hopelessness *vs*. helplessness (ERS *vs*. ERS)			
HSS	0.680 (<0.001)	0.450 (<0.001)	0.582 (<0.001)
BBD	0.856 (<0.001)	0.656 (<0.001)	0.743 (<0.001)
BC	0.720 (<0.001)	0.445 (<0.001)	0.570 (<0.001)

disease. Both biological and behavioural mechanisms could help explain a link between helplessness, depression, and hypertension (5). However, they did not find a close relationship between hopelessness and risk of hypertension (5).

Helplessness has been defined in many ways. A person or animal is helpless with respect to some outcome when the outcome occurs independently of all his voluntary responses (44). In the classification systems of the ICD-10 Classification of Mental and Behavioural Disorders, Clinical Descriptions and Diagnostic Guidelines ICD-10 (45) and American Psychiatric Association (APA): The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (46), helplessness has been described as a typical symptom of depressive disorders among others such as feelings of guilt, hopelessness, sleep disturbances, loss of energy and appetite and poor concentration. In its most extreme form, helplessness is manifested as mental illness, including feelings of depression and suicidal ideation (44).

The dynamics of helplessness as a trait has been described according to cognitive-behavioural theory by Seligman (44), where helplessness is considered to be an aetiological factor of depression and persons who have experienced uncontrollability show reduced initiation of voluntary responses and risk for chronic helplessness. Those persons for whom helplessness has trait characteristics have fewer competitive and aggressive responses, loss of appetite and deficient social life (44). According to the cognitive-behavioural theory by Seligman (44), however, aggression is just one voluntary response system that is undermined by feelings of helplessness. The theory of helplessness suggests two sources for the passivity of the depressed persons: a) the belief that no response at all will be effective in controlling the outcome; b) due to 'instrumental reasons', since staying depressed brings them attention and sympathy. Therefore, the primary task of cognitive therapy (47) is to change the negative expectation of the depressed patient to a more optimistic one in which the person comes to believe that their response will favourably affect the outcome.

Despite extensive public health education regarding BC risk, many women believe that personality has a significant role in carcinogenesis, and it follows that study participants with breast tumour may be more prone than healthy individuals to report prior psychological problems in an effort to explain their BC. This could lead either to the overestimation of a true positive association, or to a false-positive association between personality variables and BC risk. Therefore, the reports on helplessness factors were obtained from the study participants who had BC symptoms but had not yet been given a definitive diagnosis.

The unweighted kappa statistics (Cohen's kappa coefficient) is a statistical measure of inter-rater agreement for categorical items. The scientific article by Jakob Cohen introducing kappa as a new technique was published in 1960 (40). Statistical significance for kappa is rarely reported, probably because even relatively low values of kappa can nonetheless be almost significant, but not of sufficient magnitude for clinical significance. However, our results indicate that when appropriate scoring (SRS or ERS) is used, the clinical data of hopelessness/helplessness in the BC, BBD and HSS groups can be reproducibly classified and identified. Our findings further suggest that the development of suitable criteria for the identification of clinical symptoms and signs may lead to the reduction of the variability between the observers.

The results of this study do support a specific link between hopelessness and helplessness attitude characteristics by the SRS and ERS. This finding is of clinical importance, since in patients with breast disease, hopelessness/helplessness might be associated with a delay in BC diagnosis and have a negative impact on the adjustment and well-being of patients.

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Conflicts of Interest

No conflicts of interest exists. The Authors alone are responsible for the content and writing of this article.

References

1 Haatainen K, Tanskanen A, Kylmä J, Antikainen R, Hintikka J, Honkalampi K, Koivumaa-Honkanen H and Viinamäki H: Life events are important in the course of hopelessness– a 2-year follow-up study in a general population. Soc Psychiatry Psychiatr Epidemiol *38*: 436-441, 2003.

2 Eskelinen M and Ollonen P: Measurement of pessimism: hopelessness scale in healthy study subjects, and in patients with benign breast disease and breast cancer: A prospective case–control study in Finland. Anticancer Res *31*: 4019-4023, 2011.

3 Greer S, Stirling M and Watson M: Patients' adjustment to cancer: the mental adjustment to cancer (MAC) scale vs. clinical ratings. J Psychosom Res *33*: 373-377, 1989.

4 Koopman C, Angell K, Turner-Cobb J, Kreshka MA, Donnelly P, McCoy R, Turkseven A, Graddy K, Giese-Davis J and Spiegel D: Distress, coping, and social support among rural women recently diagnosed with primary breast cancer. The Breast J *7*: 25-33, 2001.

5 Stern SL, Dhanda R and Hazuda HP: Helplessness predicts the development of hypertension in older Mexican and European Americans. J Psychosom Res *67*: 333-337, 2009.

6 McKenna MC, Zevon MA, Corn B and Rounds J: Psychosocial factors and the development of breast cancer: a meta-analysis. Health Psychol *18*: 520-531, 1999.

7 Aaltomaa S, Lipponen P, Eskelinen M, Kosma VM, Marin S, Alhava E and Syrjänen K: Hormone receptors as prognostic factors in female breast-cancer. Ann Med *23*: 643-648, 1991.

8 Key JA, Verkasalo PK and Banks E: Epidemiology of breast cancer. Lancet Oncol *2*: 133-140, 2001.

9 Zhu ZR, Agren J, Männistö S, Pietinen P, Eskelinen M, Syrjanen K and Uusitupa: Fatty-acid composition of breast adipose-tissue in breast cancer patients and in patients with benign breast disease. Nutr Cancer *24*: 151-160, 1995.

10 Mitrunen K, Kataja V, Eskelinen M, Kosma VM, Kang D, Benhamou S, Vainio H, Uusitupa M and Hirvonen A: Combined COMT and GST genotypes and hormone replacement therapy associated breast cancer risk. Pharmacogenetics *12*: 67-72, 2002.

11 Metsola K, Kataja V, Sillanpää P, Siivola P, Heikinheimo L, Eskelinen M, Kosma VM, Uusitupa M and Hirvonen A: XRCC1 and XPD genetic polymorphisms, smoking and breast cancer risk in a Finnish case-control study. Breast Cancer Research *7*: R987-997, 2005.

12 Sillanpää P, Hirvonen A, Kataja V, Eskelinen M, Kosma V-M, Uusitupa M, Vainio H and Mitrunen K: NAT2 slow acetylator genotype as an important modifier of breast cancer risk. Int J Cancer *114*: 579-584, 2005.

13 Pietiläinen T, Lipponen P, Aaltomaa S, Eskelinen M, Kosma V-M, Syrjänen K: Expression of retinoblastoma gene protein (RB) in breast cancer as related to established prognostic factors and survival. Eur J Cancer *31*: 329-333, 1995.
14 Chen CC, David AS, Nunnerley H, Michell M, Dawson JL, Berry H, Dobbs J and Fahy T: Adverse life events and breast cancer: case–control study. BMJ *311*: 1527-1530, 1995.
15 Roberts FD, Newcomb PA, Trentham-Dietz A and Storer BE: Self-reported stress and risk of breast cancer. Cancer *77*: 1089-1093, 1996.
16 Protheroe D, Turvey K, Horgan K, Benson E, Bowers D and House A: Stressful life events and difficulties and onset of breast cancer: case–control study. BMJ *319*: 1027-1030, 1999.
17 Price MA, Tennant CC, Butow PN, Smith RC, Kennedy SJ, Kossoff MB and Dunn SM: The role of psychosocial factors in the development of breast carcinoma: Part II. Life event stressors, social support, defense style, and emotional control and their interactions. Cancer *91*: 686-697, 2001.
18 Duijts SFA, Zeegers MPA and VD Borne B: The association between stressful life events and breast cancer risk: a meta-analysis. Int J Cancer *107*: 1023-10, 2003.
19 Ollonen P, Lehtonen J and Eskelinen M: Stressful and adverse life experiences in patients with breast symptoms; a prospective case–control study in Kuopio, Finland. Anticancer Res *25*: 531-536, 2005.
20 Ollonen P, Lehtonen J and Eskelinen M: Anxiety, depression and the history of psychiatric symptoms in patients with breast disease: a prospective case–control study in Kuopio, Finland. Anticancer Res *25*: 2527-2534, 2005.
21 Ollonen P, Lehtonen J and Eskelinen M: Coping and defending as risk factors for breast cancer in patients with breast disease: a prospective case–control study in Kuopio, Finland. Anticancer Res *25*: 4623-4630, 2005.
22 Ollonen P and Eskelinen M: Idealization as risk factor for breast cancer in patients with breast disease: a prospective case–control study in Kuopio, Finland. Anticancer Res *27*: 1625-1630, 2007.
23 Ginzburg K, Wrensch M, Rice T, Farren G and Spiegel D: Breast cancer and psychosocial factors: early stressful life events, social support, and well-being. Psychosomatics *49*: 407-412, 2008.
24 Eskelinen M and Ollonen P: Psychosocial risk scale (PRS) for breast cancer in patients with breast disease: a prospective case–control study in Kuopio, Finland. Anticancer Res *29*: 4765-4770, 2009.
25 Eskelinen M and Ollonen P: The body image drawing analysis in women with breast disease and breast cancer: anxiety, colour and depression categories. Anticancer Res *30*: 683-691, 2010.
26 Eskelinen M and Ollonen P: Evaluation of women with breast disease using body image drawing analysis. Anticancer Res *30*: 2399-2406, 2010.
27 Eskelinen M and Ollonen P: Life stress due to losses and deficit in childhood and adolescence as breast cancer risk factor: a prospective case–control study in Kuopio, Finland. Anticancer Res *30*: 4303-4308, 2010.
28 Eskelinen M and Ollonen P: Life stress and losses and deficit in adulthood as breast cancer risk factor: a prospective case–control study in Kuopio, Finland. In Vivo *24*: 899-904, 2010.
29 Eskelinen M and Ollonen P: Beck Depression Inventory (BDI) in patients with breast disease and breast cancer: a prospective case–control study. In Vivo *25*: 111-116, 2011.
30 Eskelinen M and Ollonen P: Forsen Psychological Risk Inventory for breast cancer patients: a prospective case–control study with special reference to the use of psychiatric medications. Anticancer Res *31*: 739-744, 2011.
31 Eskelinen M and Ollonen P: Montgomery-Asberg depression rating scale (MADRS) in healthy study subjects, in patients with breast disease and breast cancer: a prospective case–control study. Anticancer Res *31*: 1065-1069, 2011.
32 Eskelinen M and Ollonen P: Assessment of general anxiety in patients with breast disease and breast cancer using the Spielberger STAI self evaluation test: a prospective case–control study in Finland. Anticancer Res *31*: 1801-1806, 2011.
33 Eskelinen M and Ollonen P: Sifneos Alexithymia Questionnaire in assessment of general alexithymia in patients with breast disease and breast cancer: a prospective case–control study in Finland. Anticancer Res *31*: 3101-3106, 2011.
34 Eskelinen M and Ollonen P: Assessment of 'cancer-prone personality' characteristics in healthy study subjects and, in patients with breast disease and breast cancer using the Commitment Questionnaire: A prospective case–control study in Finland. Anticancer Res *31*: 4013-4017, 2011.
35 Kruk J: Self-reported psychosocial stress and the risk of breast cancer: A case-control study. Stress *15*: 162-171, 2012.
36 Boyle P: SEARCH programme of the International Agency for Research on Cancer. Eur J Cancer *26*: 547-549, 1990.
37 Eskelinen MJ, Pajarinen P, Collan Y, Pesonen E, Alhava E, Kettunen K, Nordling S: Relationship between DNA ploidy and survival in patients with primary breast cancer. Br J Surg *76*: 830-834, 1989.
38 Mitrunen K, Jourenkova N, Kataja V, Eskelinen M, Kosma VM, Benhamou S, Vainio H, Uusitupa M and Hirvonen A: Steroid metabolism gene CYP17 polymorphism and the development of breast cancer. Cancer Epidemiol Biomarkers Prev *9*: 1343-1348, 2000.
39 Mitrunen K, Jourenkova N, Kataja V, Eskelinen M, Kosma VM, Benhamou S, Vainio H, Uusitupa M and Hirvonen A: Glutathione-S-transferase M1, M3, P1 and T1 genetic polymorphism and susceptibility to breast cancer. Cancer Epidemiol Biomarkers Prev *10*: 229-236, 2001.
40 Cohen J: A coefficient of agreement for nominal scales. Educ Psychol Meas *20*: 37-46, 1960.
41 Boyd NF, Pater JL, Ginsburg AD and Myers RE: Observer variation in the classification of information from medical records. J Chron Dis *32*: 327-332, 1979.
42 Cohen J: Weighted kappa: Nominal scale agreement with provision for scaled disagreement or partial credit. Psychological Bulletin *70*: 213-220, 1968.
43 Engel GL: A life setting conducive to illness: the giving-up–given-up complex. Ann Intern Med *69*: 293-299, 1968.
44 Seligman MEP: Helplessness on Depression, Development, and Death. San Francisco: W.H. Freeman and Company, 1975.
45 World Health Organization (WHO): The ICD-10 Classification of Mental and Behavioural Disorders, Clinical Descriptions and Diagnostic Guidelines. WHO, Geneva, Switzerland, 1992.
46 American Psychiatric Association (APA): The Diagnostic and Statistical Manual of Mental Disorders, Fourth edition. American Psychiatric Press, Washington DC, 1994.
47 Beck AT: Cognition, affect, and psychopathology. Arch Gen Psychiatry *24*: 495-500, 1971.

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